WHAT IS CLAIMED IS:

1. A process for bleaching substantially lignin-free pulp or paper in either a single-stage bleaching process or multi-stage reductive bleaching process; comprising

contacting said substantially lignin-free pulp or paper with an aqueous reductive bleaching solution comprising hydroxymethane sulfinic acid during a reductive bleaching stage for sufficient amount of time at least partially to bleach said substantially lignin-free pulp or paper.

2. The process of claim 1 wherein said substantially lignin-free pulp is recycled waste paper.

3. The process of claim 1 wherein the amount of hydroxymethane sulfinic acid is from about 0.1 to about 40 pounds per ton (dry weight) of pulp or paper being treated.

4. The process of claim 1 wherein at least one second reductive bleaching agent simultaneously contacts the substantially lignin-free pulp or paper.

5. The process of claim 4 wherein the second reductive bleaching agent is selected from the group consisting of sodium hydrosulfite, formamidine sulfinic acid and mixtures thereof.

6. The process of claim 4 wherein the weight ratio of hydroxymethane sulfinic acid to the second reductive bleach is from about 1:20 to about 20:1.

7. The process of claim 4 wherein the amount of second reductive bleaching agent is from about 0.1 to about 40 pounds per ton (dry weight) of pulp or paper being treated.

8. The process of claim 1 wherein additionally at least one bleaching initiator is added to the aqueous solution of hydroxymethane sulfinic acid.

9. The process of claim 8 wherein said bleaching initiator is selected from the group consisting of one or more sugars, alum and mixtures thereof.

10. The process of claim 8 wherein the weight ratio of said bleaching initiator is from about 0.1 pound/ton of pulp to about 40 pounds/ton.

11. The process of claim 1 wherein the aqueous reductive bleaching solution comprising hydroxymethane sulfinic acid is employed in at least one stage of multi-stage bleaching process.

12. The process of claim 1 wherein the hydroxysulfinic acid employed is a sodium salt.

13. The process of claim 1 wherein the contacting occurs at a temperature from about 50°C to 110°C for about 15 minutes to about 360 minutes.

14. An aqueous reductive bleach solution comprising hydroxymethane sulfinic acid with at least one bleaching initiator.

15. The aqueous reductive bleach solution of claim 14 wherein the bleaching initiator is selected from the group consisting of one or more sugars, alum and mixtures thereof.

16. The aqueous reductive bleach solution of claim 14 wherein the weight ratio of hydroxymethane sulfinic acid to the at least one bleaching initiator is from about 1:20 to about 20:1.

17. The aqueous reductive bleach solution of claim 14 additionally containing at least one second reductive bleaching agent.

18. The aqueous reductive bleach solution of claim 17 wherein the second reductive bleaching agent is selected from the group consisting of sodium hydrosulfite, and formamidine sulfinic acid and mixtures thereof wherein the weight ratio of hydroxymethane sulfinic acid to the second reductive bleaching agent is from about 1:20 to about 20:1.